

ORC

EPA Region 5 Records Ctr.



351305

PROPOSALS FOR
TREATMENT AND DISPOSAL
OF CYANIDE CONTAMINATED FILM WASTES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

MAY, 1983

ALTERNATIVES

1) Incinerate (Non-Commercial):

Removal of all contaminated chips to various steel mills for complete thermal destruction in basic oxygen furnaces.

Several steel companies have indicated a willingness to accept the waste material, provided that it can be safely utilized in their existing equipment. To insure proper and complete cyanide (CN) destruction in the B.O.F.'s, a test burn(s) must take place. It is estimated that the test burn(s), stack test(s), and analysis of resulting data will take approximately 10 - 14 days.

Total (Max) Cost

- Thermal Destruction in B.O.F.	-----
- Transportation of Wastes (Dixon)	\$ 66,250
- Transportation of Wastes (Cook County)	\$ 10,600
- Decontamination of Dixon Facility	\$ 7,500
- Decontamination of Trailers	\$ 42,750
- Transfer of Trailer Waste to Proper Vehicles	<u>\$ 42,750</u>
TOTAL (MAX)	<u>\$ 169,850</u>

Possible Payments by Trailer Owners

- Transportation of Wastes (Cook County)	\$ 10,600
- Decontamination of Trailers	\$ 42,750
- Transfer of Trailer Wastes	<u>\$ 42,750</u>
TOTAL (MIN)	<u>\$ 73,750</u>

2) Detoxify and Store at Dixon:

Treat materials located at Dixon, Illinois with sodium hypochlorite solution to completely oxidize cyanide. Leave detoxified materials on site.

Transport material from Chicago area to Dixon, and treat with sodium hypochlorite and deposit detoxified materials at Dixon.

Total (Max) Cost

- Treat 10 Million lbs. of Waste at Dixon	\$ 112,500
- Transport 6 Million lbs. of Waste to Dixon	\$ 106,000
- Treat 6 Million lbs. of Waste	\$ 67,500
- Decontaminate Trailers 171 x \$250	<u>\$ 42,750</u>
TOTAL (MAX)	<u>\$ 328,750</u>

Possible Payment by Trailer Owners

- Transport of Waste to Dixon	\$ 106,000
- Decontamination of Trailers	<u>\$ 42,750</u>
TOTAL (MIN)	<u>\$ 180,000</u>

3) Transport to Dixon, Detoxify & Landfill:

On site treatment of materials at Dixon. Transport materials from Chicago area to Dixon. Provide treatment of materials to totally oxidize cyanide and transport and dispose of treated waste in landfill. Assume landfill is located within 100 miles.

Total (Max) Cost

- Treat 10 Million lbs of Waste at Dixon	\$ 112,500
- Transport 6 Million lbs. of Waste to Dixon	\$ 106,000
- Treat 6 Million lbs. of Wastes	\$ 67,500
- Decontaminate Trailers	\$ 42,750
- Transport 16 Million lbs. of Wastes to Landfill	\$ 160,000
- Disposal in Landfill at \$5.00/cy	\$ 100,000
- Decontaminate Warehouse at Dixon	\$ 7,500
TOTAL (MAX)	<u>\$ 596,250</u>

Possible Payment by Trailer Owners

- Transport of Waste to Dixon	\$ 106,000
- Decontamination of Trailers	<u>\$ 42,750</u>
TOTAL (MIN)	<u>\$ 447,500</u>

- 4) Transport material in Chicago area to Elk Grove Village and treat with sodium hypochlorite to completely oxidize cyanide. Transport and dispose of waste in landfill.

Treat material at Dixon with sodium hypochlorite to completely oxidize cyanide. Transport and dispose of waste in landfill.

Total (Max) Cost

- Treatment at Dixon 10,000,000 lbs.	\$ 112,500
- Treatment at Elk Grove 6,000,000 lbs.	\$ 67,500
- Transport Dixon Wastes to Landfill	\$ 100,000
- Offload 171 Trailers	\$ 42,750
- Transport Cook County Wastes To Elk Grove	\$ 11,660
- Transport Elk Grove Wastes To Landfill	\$ 60,000
- Dispose 16,000,000 lbs in Landfill	\$ 100,000
- Decontaminate Trailers	\$ 42,750
- Decontaminate Dixon Site	\$ 7,500
TOTAL (MAX)	<u>\$ 544,660</u>

Possible Payments by Trailer Owners

- Transport Cook County Wastes To Elk Grove	\$ 11,660
- Decontaminate Trailer	\$ 42,750
- Offload 171 Trailers	<u>\$ 42,750</u>
TOTAL (MIN)	<u>\$ 447,500</u>

5) Detoxify & Store at Dixon; Detoxify & Landfill Cook County:

Treat materials at Dixon with sodium hypochlorite solution to completely oxidize cyanide. Leave detoxified material on site.

Transport material from Cook County metropolitan area to Elk Grove and treat with sodium hypochlorite solution to completely oxidize cyanide. Transport and dispose of waste in landfill.

Total (Max) Cost

- Treat Wastes at Dixon: 10,000,000 lbs.	\$ 112,500
- Decontaminate Warehouse	\$ 7,500
- Offload 171 Trailers	\$ 42,750
- Decontaminate 171 Trailers	\$ 42,750
- Transport Cook Co. Wastes To Elk Grove (25 mi. avg.)	\$ 11,660
- Treatment of 6 Million lbs. at Elk Grove	\$ 67,500
- Load 6 Million lbs. on Truck	\$ 37,500
- Transport 100 Miles to Landfill	\$ 39,750
- Landfill 6 Million lbs.	\$ 37,000
TOTAL (MAX)	<u>\$ 398,850</u>

Possible Payments by Trailer Owners

- Offload 171 Trailers	\$ 42,750
- Decontaminate 171 Trailers	\$ 42,750
- Transport Cook Co. Wastes to Elk Grove	<u>\$ 11,660</u>
TOTAL (MIN)	<u>\$ 301,690</u>

6) Commercial Incineration:

Removal of all waste materials for thermal destruction (incineration) at a commercial waste incinerator designed to accept hazardous wastes.

Proposal consists of incineration of waste materials in a rotary kiln. Contaminated chips must be loaded into fiber drums prior to deposition in rotary kiln (may increase costs).

Total (Max) Cost

- Total Cost of Incineration (\$.12/lb. x 16,000,000 lbs.)	\$ 1,920,000
- Transportation of Wastes (Dixon)	\$ 66,250
- Transportation of Wastes (Cook County)	\$ 10,600
- Decontamination of Dixon Facility	\$ 7,500
- Decontamination of trailers (171 x \$250)	\$ 42,750
- Transfer of Trailer Wastes to Proper Vehicles (171 x \$250)	\$ 42,750
TOTAL (MAX)	<u>\$ 2,089,850</u>

Possible Payments by Trailer Owners

- Transportation of Wastes (Cook Co.)	- \$ 10,600
- Decontamination of Trailers	- \$ 42,750
- Transfer of Trailer Wastes	- <u>\$ 42,750</u>
TOTAL (MIN)	<u>\$ 1,993,750</u>

- 7) Disposal of all waste materials at an out of state landfill. No chemical decontamination of wastes would be necessary.

Proposal consists of sampling, removal of all waste materials, transportation to site, landfilling of waste materials, and decontamination of all storage trailers.

Total cost for approximately 8000 tons - \$ 1,920,000.

PARTIAL BASIS FOR COST ESTIMATES

HAULING COSTS:

The standard hauling costs for a 40,000 lb. unit is \$2.65 per mile. A 100 mile haul of 16,000,000 pounds of material would cost \$106,000.

LOADING COSTS:

The loading cost for one 40,000 capacity truck is estimated to be \$250.

DECONTAMINATION COSTS:

The decontamination of the emptied trucks utilizing high pressure hoses with a 20% solution of sodium hypochlorite and the disposal of residues is estimated to be \$25 per truck.

Decontamination of the emptied warehouse in Dixon is estimated to cost \$7,500, based on 36,000 square feet of floor space.

OPERATIONAL STEPS FOR THE
TRANSPORTATION OF CYANIDE WASTE
FROM ALL TRAILER LOCATIONS

Illinois State Police Recommendations are as follows:

- (1) That the contents of each trailer be safely transferred to semi-dump vehicles which are to be tarped and sealed from leakage.
- (2) That the loading and departure of loaded units be coordinated with the receiving facility based upon that facility's capability to use the waste.
- (3) That notification be given when each loaded unit leaves a trailer site as well as that unit's arrival at the disposal site.
- (4) That Illinois D.O.T. have a tow truck on stand-by to accommodate any possible mechanical problem encountered by the transportation unit.
- (5) That no convoy or escort type situation be implemented. This could generate undue public concern.

TRANSPORTATION GROUP
(DEPARTMENT OF TRANSPORTATION & STATE POLICE)

It is our recommendation that the material not be moved until it is transferred, on site, to open top dump trailers. None of the present trailers should be used to transport the material.

The material would be removed in the following order:

1. J. Fiorito - Franklin Park - 2 trailers
2. General Diesel - Elk Grove Village - 3 trailers
3. H.B.E. Trailer - Hinsdale - 7 trailers
4. J's Mobile - McCook - 14 trailers
5. Linco - Chicago Ridge - 18 trailers
6. Red Devil - Rosemont - 25 trailers
7. Aldens - Chicago - 26 trailers
8. Easel Trailer - Summit - 37 trailers
9. Gemini - Hodgkins - 39 trailers

We presently have 171 semi-trailers with a weight range of approximately 35,000 to 40,000 lbs. each. The total weight is approximately 5,985,000 to 6,840,000.

An estimate would be approximately 160 dump trailer loads at 40,000 lbs. each for a total of 6,400,000.

Factors that are important but unavailable at this time are loading rates and schedules at the present sites, and unloading rates and schedules at the destinations.